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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/760,107

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Yossi Corem

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/760,107	Applicant(s) COREM ET AL.	
	Examiner Sung H. Pak	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27 is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-23 is/are rejected.
- 7) ☒ Claim(s) 13 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Israel on July 18, 2001. It is noted, however, that applicant has not filed a certified copy of the Israeli application as required by 35 U.S.C. 119(b). In this regard, please note that this is **not** a national stage application (35 U.S.C. 371) of PCT Application PCT/IL02/00167, but is rather a continuation of the PCT Application. The certified copy of the priority document has thus not been supplied by the International Bureau. It is applicant's responsibility to furnish the certified copy of the Israeli application required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 8-10, 12, 14-18, 21, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Sorin (US 6,847,742 B2).

Sorin discloses an optical device with all the limitations set forth in the claims, including: an input fiber for inputting an input optical signal, an output fiber for outputting an output optical signal, an optical path between said input fiber and said output fiber (Fig. 1, Fig. 4); a substrate ('14' + '15' in Fig. 1) comprising at least one step ('44' in Fig. 1) with predefined parameters

Art Unit: 2874

(i.e. having a certain height and thickness), said at least one step being disposed in part of the optical path and adding a phase shift to light passing therethrough (column 3 lines 57-59); a variable phase shifting element controlled by an applied signal disposed serially with the at least one step in said part of the optical path (e.g. “26” Fig. 1; column 4 lines 19-21); such that the optical interference between light traversing those part of the optical path containing at least one step and light traversing those parts of the optical path not containing said at least one step results in a wavelength dependent transmission (gain equalization) through the device (column 3 lines 10-27); wherein the phase shift in said part of the optical path containing said at least one step is selected such that the said device has a predetermined spectral transmission profile (column 3 lines 10-27); wherein said variable phase shifting element is pixilated such that it shifts the phase of light passing through at least part of the optical path (column 4 lines 45-52, lines 61-65); wherein said variable phase shifting element is a liquid crystal device (column 4 lines 61-65); wherein the input fiber and the output fiber are disposed such that light passes from the input fiber to the output fiber transmission through the optical path (Fig. 1); wherein the applied signal is adjusted according to the spectral profile of the signal output such that the optical device performs dynamic gain equalization (abstract; claim 1).

Regarding claims 14-18, 21, 23, since Sorin discloses all the structural limitations set forth in the claims, it inherently teaches the method of adjusting the transmission profile of an optical path by “providing” all the structures as claimed in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2874

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-7, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorin (US 6,847,742 B2) in view of Bouevitch (US 2003/0021526 A1).

Sorin discloses an optical device and a method with all the limitations set forth in the claims as discussed above, except it does not explicitly teach the use of a circulator and a reflecting surface.

On the other hand, the use of a circulator for disposing input, output and signal processing ports, and the use of a reflecting surface for disposing substrates for gain equalization are known in the art. Bouevitch discloses an exemplary device with such configuration. Bouevitch discloses the use of a circulator for disposing input and output fibers (Fig. 1B), and a reflecting surface for carrying out gain equalization is in communication with the third port (Fig. 1B). This configuration is known in the art to be advantageous and desirable over the transmissive configuration of Sorin, because it allows for folding of the optical transmission path, such that plurality of optical components may be disposed in a smaller space. Thus this configuration leads to a more compact and modular optical component.

Art Unit: 2874

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Sorin device to have a circulator and a reflecting surface as discussed above.

Claims 11, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorin (US 6,847,742 B2).

As discussed above, Sorin discloses a dynamic gain equalizer and a method of adjusting the spectral transmission profile with all the limitations set forth in the claims. Even though Sorin fully discloses dynamic gain equalization, it does not explicitly show the use of a channel monitor device. However, the use of a channel monitor device is well known in the optical transmission and feedback art. Channel monitors advantageously provide accurate and precise condition of the transmitted optical signal in real-time. Accurate and precise monitoring is advantageous and desirable because it allows for an efficient gain equalization device. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Sorin device to have a channel monitor.

Allowable Subject Matter

Claims 13, 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-27 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: As discussed above, a device and a method of adjusting the transmission spectral profile for gain

Art Unit: 2874

equalization is known in the art. Sorin (US 6,847,742 B2) and Bayart et al (US 6,667,824 B2) disclose gain equalization devices utilizing liquid crystal components for phase shifting. Jimenez (US 6,553,158 B1) discloses the use of a stepped substrate for providing phase shifts and providing wavelength dependent optical transmission.

However, none of the prior art fairly teaches or suggest such an optical device comprising a stepped, transmissive substrate, wherein the applied optical signal to the device is dependent on the effective wavelength and amplitude of the Fourier components of the spectral profile of the output signal, in which the Fourier components are associated with the predetermined parameters of a stepped area of the transmissive substrate as claimed in the instant application.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brunfeld et al (US 5,459,576) discloses a stepped substrate for differential phase contracting; Cohen (US 2004/0120683 A1) discloses a fiber optic attenuator using a liquid crystal element providing variable attenuation; Okuno (US 6,144,488), Bhagavatula (US 6,046,854), Naito (US 6,034,812), and Bhagavatula (US 5,841,583) disclose gain equalization devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2874

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Examiner
Art Unit 2874

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